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Minimum Biofilm Eradication Concentration (MBEC) of different antimicrobials on *Listeria monocytogenes* and *Salmonella enterica* biofilms

D. Rodrigues[1], P. Teixeira[1], R. Oliveira[1], H. Ceri[2] and J. Azeredo[1]*

[1] Institute for Biotechnology and Bioengineering, Centre of Biological Engineering, Universidade do Minho, Campus de Gualtar, 4710-057 Braga, Portugal

[2] Biofilm Research Group, Department of Biological Sciences, University of Calgary, 2500 University Drive N.W., Calgary, AB T2N 1N4, Canada

* Corresponding author: e-mail: jazeredo@deb.uminho.pt, Phone: +351 253604419

Inadequate disinfection of food processing environments contributes to foodborne disease outbreaks, particularly those concerning *L. monocytogenes* and *Salmonella enterica*. The ability of these bacteria to adhere and form biofilms on several surfaces makes sanitation more difficult and challenging, reason why susceptibility tests must cover not only planktonic cells but also adhered cells and biofilms. Through MBEC assessment using Calgary Biofilm Device (CBD), this work aimed at comparing the performance of four antimicrobials on *L. monocytogenes* and *Salmonella enterica* biofilms and the disinfection efficiency between strains and species.

Three *L. monocytogenes* strains (994, 1562 and CECT 4031^T) and five *S. enterica* strains (355, CC, NCTC 13349, LT2 and ATCC 140285) were used. Biofilms were grown on CBD for 24 hours, in Mueller-Hinton Broth, at 37ºC with shaking at 125 rpm. Disinfection was performed with sodium hypochlorite, benzalkonium chloride, hydrogen peroxide and triclosan, while bacterial death was assessed by standard plate method on Trypticase Soy Agar after sonication.

Results showed that sodium hypochlorite had the lowest MBEC values while triclosan had the worst performance, since no *S. enterica* biofilm eradication was achieved even at the maximum concentration used. It was also found that, except for hydrogen peroxide, MBEC values for *L. monocytogenes* biofilms were similar or inferior to those found for *S. enterica*. Significant differences on minimum survival biomass results were also observed between strains of the same species.

Summarizing, this work has pointed out chlorine agents as the most effective on disinfecting biofilms of both species used and revealed a higher susceptibility of *L. monocytogenes* biofilms to disinfection in general when compared with *S. enterica* biofilms. Moreover, not only interspecies but also intraspecies variability were found to influence disinfection efficacy.